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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
KEMMERLE III, RUSSELL J	
ART UNIT	PAPER NUMBER
1791	
MAIL DATE	DELIVERY MODE
01/30/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,009	NYKIEL ET AL.	
	Examiner	Art Unit	
	RUSSELL J. KEMMERLE III	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-10,12-14 and 17-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-10,12-14 and 17-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

Claims 1-4, 7, 8, 10, 12, 14 and 16-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kraglund (WO 97/22563) in view of Bronshtein (US Patent 4,617,045).

Referring to claims 1-3, 9, 10, 16, 17 19, 20 and 24 Kraglund teaches a method of creating briquettes to be used as a charge to be melted and formed into fibers. Specifically, the briquettes are to be formed from a mixture of alumina sand which had been used in foundry processes with other inorganic industrial waste material (page 6 lines 16-25). Kraglund specifically discloses creating a briquette of 52 wt% industrial residue (35 wt% wool waste, 12 wt% LD converter slag and 5 wt% power plant bottom ash) and 35 wt% foundry sand (i.e., correction material; 30 wt% bauxite foundry sand and 5 wt% olivine foundry sand) (page 9, example 1). The briquettes are generally made by use of a binder and compression of the materials to form the briquette (page 8, lines 11-14). An example of the amount of cement binder used is given as 13 wt% (page 9 example 1). Kraglund also discloses that the mixture used to make the bricks can include wood ash (i.e., combustion residues) as any amount of the industrial waste, depending on the desired final composition (page 6 lines 16-25), specifically giving an example of 5 wt% combustion residue (power plant bottom ash) (page 9 example 1).

While Kraglund does not specifically disclose the grain size of the correction material, Kraglund does disclose that the minimum dimension of the final product may be as small as 5mm (page 8 lines 22-26). This would inherently require that all materials used to create such a final product have a particle size of less than 20mm. Since the grain must be contained in one particle, it would have to be less than the particle size of 20mm, and it would have been within the skill of one of ordinary skill in the art to optimize such a value and use materials with a grain size of 3-7mm.

Kraglund does not disclose that the industrial waste or correction material is reduced in size before being formed into the briquette.

Bronshtein teaches a method of forming waste products into a briquette, which is then melted and converted into fibers (abstract). Bronshtein discloses that larger pieces of waste used to make the briquettes should be reduced in size (Col 3 line 10) and that as the particle size is reduced less binder is needed to form the briquettes (Col 5 lines 31-35). Specifically Bronshtein discloses using combustion residue (shot) that has been ground to a particle size of less than 50μm (0.05 mm) (Col 5 lines 31-34). While Bronshtein teaches that the particle size of the ground residue is less than 50μm, it does not disclose what the grain size of the material is. However, since the grain must be contained in one particle, it would have to be less than the particle size of 50μm.

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have combined the fiber making method as taught by Kraglund with the teaching of Bronshtein to reduce the particle size of the materials before pressing them into a briquette, and further using combustion residue of less than

50μm, since Bronshtein teaches that by reducing the particle size less binder is needed, which could make the process cheaper or provide better control over the composition of the briquette.

Referring to claims 4 and 14, Kraglund in view of Bronshtein is relied upon as discussed above. Kraglund further discloses that the briquettes formed as discussed above are placed into the furnace to be melted with extrusive rocks, specifically with diabase (page 9, example 1).

Referring to claim 7, Kraglund in view of Bronshtein is relied upon as discussed above. Kraglund further discloses a fiber composition substantially the same as that recited in claim 7 of the instant application (claim 4).

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have used a combustion residue in the process of making a briquette as taught by Kraglund, and to have used a combustion residue with a composition similar to that of the final fiber as taught by Kraglund. This would have been obvious to one of ordinary skill in the art since using materials with compositions similar to the desired final composition would reduce the amount of other materials that would have to be added in order to reach the desired composition.

Referring to claim 8, Kraglund in view of Bronshtein is relied upon as discussed above. Kraglund further discloses that the binder used to mold the briquettes is a cement binder (page 8 lines 14-15).

Referring to claim 12, Kraglund in view of Bronshtein is relied upon as discussed above. Kraglund further discloses that the fiber has a high alumina content to increase biological solubility (page 1 lines 2-7).

Referring to claim 18, Kraglund in view of Bronshtein is relied upon as discussed above. Kraglund does not disclose the addition of hematite or magnetite to the mixture to be turned into the briquette, however Kraglund does teach the briquette contain iron oxide as discussed above. Since haematite and magnetite are both forms of iron oxide, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to have added haematite or magnetite as a way to get the iron oxide content up to the levels taught by Kraglund.

Referring to claim 21, Kraglund also discloses that the mixture used to make the bricks can include wood ash (i.e., combustion residue of wood chips) (page 6 lines 16-25).

Referring to claim 22, Kraglund further discloses the non-briquette charge, that is, the material feed in to the melt with the briquettes, can include basalt or diabase (page 7 lines 7-16).

Referring to claim 23, while neither Kraglund nor Bronshtein specifically disclose the density of the melt being formed, since it is found that they render obvious the method of forming a melt of the current invention, that is considered evidence that the melt resulting from that process would have the same or very similar properties as the current invention, specifically a density of 1.4-1.9 kg/dm^3.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kraglund in view of Bronshtein and Faulmann (US Patent 6,402,801).

Kraglund and Bronshtein are relied upon as discussed above, but fail to teach that the combustion residue is produced by fluidized-bed combustion.

Faulmann discloses that fluidized bed combustion residue contains calcium oxide (CaO) (Col 2 lines 5-6).

It would have been obvious to one of ordinary skill in that art, at the time of invention by applicant, to have modified the method of forming briquettes for fiber making as taught by Kraglund in view of Bronshtein, by using fluidized bed combustion residue which as taught by Faulmann contains CaO. This would have been obvious to one of ordinary skill in the art since CaO is taught by Kraglund as a component of the briquette, and waste from fluidized bed combustion would be readily available and affordable and a good source of CaO.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kraglund in view of Bronshtein and Klein (US Patent 6,565,645).

Kraglund and Bronshtein are relied upon as discussed above, but fail to teach that the combustion residue contain components from flue gas desulphurization.

Klein discloses that a large amount of gypsum (calcium sulfate) comes from flue gas desulfurization (Col 4 lines 27-33).

It would have been obvious to one of ordinary skill in that art, at the time of invention by applicant, to have modified the method of forming briquettes for fiber making as taught by Kraglund in view of Bronshtein, by using gypsum which is readily

available from flue gas desulfurization as taught by Klein. This would have been obvious to one of ordinary skill in the art since gypsum is a well known source of one of the materials listed in the composition recited in claim 4 of Kraglund (CaO), and as waste from flue gas desulfurization would be readily available and affordable.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kraglund in view of Bronshtein and Lee (US patent 6,342,461).

Kraglund and Bronshtein are relied upon as discussed above. As discussed above Kraglund discloses that the combustion residue may be up to all of the industrial waste (up to 52 wt% of the total composition). However, Kraglund in view of Bronshtein fail to teach that the combustion residue contain ashes and slags from the combustion of paper sludge.

Lee discloses a method of making a ceramic composition that can use as one of its components paper ash (ash from the combustion of paper sludge) (Col 1 lines 7-18, Col 12 lines 37-40). Lee discloses that during sintering the paper ash forms a liquid phase and plays the part of feldspar in the conventional ceramic composition. Lee further discloses that the paper ash is a source of alkali metals and alkali earth metals for the final ceramic composition.

It would have been obvious to one of ordinary skill in that art, at the time of invention by applicant, to have modified the method of forming briquettes for fiber making as taught by Kraglund in view of Bronshtein, by using paper ash as an industrial waste material as taught by Lee. This would have been obvious to one of ordinary skill in the art since Lee discloses that paper ash is an effective additive for forming a

ceramic composition, and assists both in the sintering process as well as in creating the desired final composition.

Response to Arguments

Applicant's arguments filed 19 November 2008 have been fully considered but they are not persuasive.

Applicant argues that Kraglund does not disclose the use of ashes or slags coming from the combustion of paper sludge or wood chips. This is not found to be persuasive because Kraglund specifically discloses the use of wood ash as the industrial waste used (page 6 line 24). The argument with respect to ash or slag from the combustion of paper sludge is considered moot in view of the rejection of claim 9 above relying on Lee to teach the use of paper ash as an industrial waste used to make a ceramic component.

Conclusion

Applicant's amendment necessitated any new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RUSSELL J. KEMMERLE III whose telephone number is (571)272-6509. The examiner can normally be reached on Monday through Thursday, 7:00-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art Unit 1791

/R. J. K./

Examiner, Art Unit 1791